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The overburden is mostly loess-type argillaceous soil and is from 2 - 3 to 15 - 18 meters thick. The enclosing rock is relatively soft sandstone, clayey shale, argillite, and siltstone.

Sections to be worked by the open-pit method should be explored in greater detail, not only by sloping bore holes running from the hanging wall or footwall of the seam but also by a series of vertical bore holes along the head of the seams. As a result, it will be possible to determine precisely the elements of structure of the seams, the thickness of the overburden, the depth of the layer of carbon black, the depth of the oxidation zone, and also the presence of burned out or eroded sections.

It is most expedient to use light portable rotary drilling machines.

Little pits at the outcrops of coal seams can also be constructed in the Kemerovo area.

Open-pit mining in the "Opytnyy" and "Krasnobrodskiy" pits, as well as in a pit at the "Ziminskiye Slopes," indicates clearly that working outcrops of thick coal seams in the Kuzbass by small pits is thoroughly efficient and can be organized with relatively small capital outlay.

The most economical system of removal work is the nontransport method, with use of draglines and by removing overburden to the edges of the pit. When adjacent seams are worked one after another, it is possible to dispose of the rocks into the worked-out area. Draglines mounted on a caterpillar must be used and be equipped with shovels suitable to the scope of operations and with the greatest possible operational dimensions. This results in excellent maneuverability and the possibility of transferring the draglines by their own power from one section to another.

The transport method of removal work, by mechanized shovels to auto transport, is apparently used only in those cases where the distance of transporting the removed stones to the dumping grounds is too great for draglines, even with repeated re-excavation. Transport of the removed material by auto transport is limited by the load capacity of the auto trucks. With small auto trucks it is impossible to use heavy excavators, and light excavators do not assure the requisite productivity of removal work.

Extraction work may be carried out by two methods: by dragline standing at the head of the seam or on a bench at a depth 8 - 10 meters below the head of the seam, or by mechanical shovels standing on the bottom of the pit. Transport of coal in the overwhelming majority of cases should be carried on by auto truck with the largest possible load capacity.

The method of mining operations is determined by the thickness and angle of dip of the coal seam. If the seam is 10 - 15 meters thick, the use of mechanical shovels is excluded. If it is thicker than that, the shovels have an advantage over draglines. For seams of any thickness whatever, the lowest level should be worked by draglines. The bucket capacity of the extracting draglines should be 1.0 - 1.5 cubic meters, that of mechanical shovels 0.5 - 1.5 cubic meters. In specific cases, where the railroads approach close to the pit, transport of coal from the excavators by belt conveyor is permissible. If there is no source of electric power near the pit, excavators should have internal combustion engines but, to supply power for the drilling machines, electric drills, and belt conveyers, electric power plants with a capacity of 30 - 100 kilowatts are necessary. In the area of active mines, coal can be transported to the intricate technological installations of the mines; in new regions, to the temporary loading points of railroad stations equipped with the easiest loading devices. Development of the open-pit method of coal mining in the Kuzbass by small pits will permit the most effective working in a short time of a whole series of sections and will considerably step up mining in the basin.

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